

REMARKS

This amendment is filed in response to the Office Action mailed on October 20, 2003. Claims 1-18 are pending in the application. Claims 1, 6, 7, 12, 13, and 18 have been amended.

The applicant thanks Examiners Farah and Dvorak for the courtesy of the personal interview held on January 5, 2004, during which claims 1-18 were discussed in the context of the reasons for rejecting the claims and the prior art Lai (U.S. patent 5,549,632), Swinger et al. (U.S. patent 6,325,792) and Davidson (U.S. patent 5,282,088) patents. Mr. Gordon S. Scholler, one of the inventors, attended the interview and discussed how the claimed invention was discovered and why it is not obvious over the cited prior art patents. A Declaration Under 37 CFR § 1.132 of Mr. Scholler is attached which covers the points he made at the interview.

The applicant, IntraLase Corp., is licensed under the Lai '632 patent, the primary prior art reference relied on in the rejection, which describes a laser system and applanator plate that can be used in ophthalmic surgery. (Scholler Decl., ¶ 2).

IntraLase manufactures and sells to ophthalmic surgeons a laser system that is used to form a flap in corneal tissue for the first step in the procedure known as *laser in situ keratomileusis* (LASIK). The surgeon creates the flap using laser energy in a precisely controlled way to photodisrupt tissue below the surface of the cornea. The flap is held by an instrument and lifted to expose underlying internal corneal tissue to be shaped by another laser. Afterward, the flap is returned to its original position. This procedure changes the refractive characteristics of the eye to improve the patient's vision. (Scholler Decl., ¶ 3).

One component for success of this operation is a patient interface device, which stabilizes the patient's eye and holds the laser system in a fixed position relative to the patient's eye. The patient interface holds the laser system in place relative to the eye so that the laser can form the flap at precisely the right location and depth. When coupled to the laser system, a critical part of the patient interface is an applanation lens that contacts the eye. (Scholler Decl., ¶ 4).

The applanation lens must be biocompatible because it contacts the eye, and cannot be formed of a material or create by-products of a material that could irritate or damage the sensitive corneal tissue. The lens must also be sterilized, preferably with gamma radiation. Gamma radiation is preferred to other acceptable methods of sterilization because it lends itself to process controls that result in reduced within-process variability thereby producing higher repeatability from one sterilization run to another. Also, compared with other methods, sterilization by gamma radiation leaves no undesirable residue and is more cost effective. The lens must also be formed of a transparent material, have a high level of transmittance for light in the ranges used by lasers, from UV to IR. The lens material must also be able to transmit the laser light without melting or sputtering to create by-products that would injure eye tissue. (Scholler Decl., ¶ 5).

Mr. Scholler also described the process that he and the other inventors went through in developing a commercial application of the system in the Lai '632 patent, before they discovered that high purity, noncrystalline fused silica was the ideal material for the applanation lens in the patient interface.

Mr. Scholler and his team began by testing plastics of the type described in the Lai '632 patent, which had previously been used in other types of eye products. The Lai '632 patent, col. 7, lns. 47-49, describes that "[t]he applanator plate 111 is preferably constructed of a transparent light weight plastic, such as acrylic." After testing a number of plastic materials, Mr. Scholler's team found that none of them was satisfactory because they either melted or sputtered when laser energy was transmitted through the lens. This effect was unacceptable because the sputtered or melted plastic could injure the eye or cause scarring. (Scholler Decl., ¶ 6).

Mr. Scholler's team next decided to test an optical boron glass material that appeared to be promising because it was biocompatible, had a high degree of transmittance, and would not melt or sputter too much when subjected to laser energy. This material worked well in initial tests. However, when it was sterilized by exposure to gamma radiation it unexpectedly discolored and lost about 20% of its ability to transmit light at the wavelength used in our laser system. (Scholler Decl., ¶ 7).

They then looked for a biocompatible material that would not sputter unacceptably or melt, one that had a high degree of transmittance for laser light, and, when exposed to gamma radiation, would not lose transmittance at the wavelength at which the IntraLase laser operates. The team looked at various types of silica and found that crystalline forms of silica like those used in making glass would also discolor and lose transmittance, but that an amorphous, noncrystalline, synthetic silicon dioxide, called synthetic fused silica, would not discolor when exposed to gamma radiation. This material was tried and found to work. It did not discolor or result in lower transmittance after being sterilized with gamma radiation. (Scholler Decl., ¶ 8). This material is disclosed in the specification on p. 12, ¶ 0047.

This is the product being made and sold by IntraLase, and which is the subject of the claims pending in this application.

There are three independent claims pending in the application. Claim 1 is directed to an improved applanation lens for use as an interface between a patient's eye and a surgical laser system. The lens has an applanation surface configured to contact the eye and is formed of a high purity synthetic fused silicon dioxide such that the lens does not discolor or lose light transmittance when subjected to gamma radiation. Claim 7 is directed to an interface with an attachment apparatus adapted to overlay the anterior surface of an eye and for stable engagement to the eye, with the applanation lens adapted to be mounted on the attachment surface. The lens in claim 7 has the same structure and characteristics as the lens in claim 1. Claim 13 is directed to a method for applanating an anterior surface of a patient's eye and coupling the eye to a surgical laser. The method includes the steps of providing an interface that has been sterilized by using gamma radiation. The interface includes a lens that is positioned in proximate contact with the operative area of the eye, which has the same structure and characteristic as the lens of claim 1.

It is submitted that these claims are patentable over the prior art cited by the Examiner. In the office action mailed October 20, 2003, all of the claims were rejected over the Lai '632 patent, combined with Swinger and Davidson. The Examiner took the position that the Lai '632 patent taught all of the features in the claims except for the type of laser used with his invention, and fails to teach the material in which the applanation lens is made of, or its relative laser wavelength. The Examiner cited Swinger as teaching an alternative type of laser that uses UV light and an applanation lens, and mentioned that it does not teach

the material from which the lens is formed. The Examiner cited Davidson as teaching an applanation lens formed of fused silica and transparent in the UV spectrum, down to about 180 nm. The Examiner commented that since Davidson is made of the same material recited in the claims, it will "have 'a purity great enough to resist discoloration upon prolonged irradiation produced by high energy irradiation sources such as UV, X-rays, gamma rays, etc.,'" and concluded that it would have been obvious to one skilled in the art to modify Lai and Swinger in view of Davidson to make an applanation lens of fused silica and have the characteristics as claimed.

It is submitted the claimed invention is not obvious over the cited references. First, neither Lai nor Swinger teaches or suggests that an applanation lens of the type used for a surgical laser that contacts the eye must be formed of a synthetic fused silica, which all of the claims require. In fact, Lai '632 teaches away from the claimed invention because it says that the lens is preferably formed of a transparent, light weight plastic such as acrylic. No other material is mentioned in either reference. As shown above, plastics were found not to work.

Although Davidson discusses a spherical lens formed on the end of an optical fiber that is made from "fused silica," this reference combined with Lai and/or Swinger does not render the claimed invention obvious. It is submitted that Davidson is not analogous to the claimed inventions. Davidson was not concerned with a lens useful for contacting the eye and as part of a laser system for eye surgery, but as part of instrument for inspecting and measuring semiconductor products. The lens in Davidson is formed by heating the tip of an optical fiber and forming a spherical shape at the tip which becomes the lens. This lens is used in the deep ultraviolet wavelength, down to 180 nm wavelength, so that it can be used to measure line widths to below 0.4 mm for defect inspection. Thus, there is no teaching of a lens that can be in contact with the eye during surgery, nor any requirement that the lens be sterilized by any method, nor any suggestion that the lens should not discolor or lose transmittance when sterilized by a specific method, gamma radiation.

Even if Davidson is properly applicable as a reference, it falls short of providing any teaching that would render the claimed subject matter obvious. First, Davidson only mentions that fused silica is used in his lens. This is not a teaching of synthetic fused silica as claimed. The term "fused silica" is commonly used to describe not only synthetic fused silica, but also any type silica glass, even vitreous glass of the type formed of sand which the

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inventors found discolors when exposed to gamma radiation, The definition of "silica glass" from the McGraw-Hill Dictionary of Scientific and Technical Terms, 5th Ed., 1994, p. 1825, attached as Exhibit 1, describes silica glass generally as "A translucent or transparent vitreous material consisting almost entirely of silica. Also, known as fused silica; vitreous silica." Similar definitions in Merriam Webster's Collegiate Dictionary, 10th Ed., 1994, copies attached as Exhibit 2, confirm that Davidson does not teach the use of synthetic fused silica. The term "fused quartz" is defined as "QUARTZ GLASS – also called fused silica" (p. 474); "quartz glass" as "vitreous silica prepared from pure quartz and noted for its transparency to ultraviolet radiation;" (p. 957); and "quartz" as "A mineral consisting of silicon dioxide occurring in colorless and transparent and hexagonal crystals or in crystalline masses . . ." (p. 957). These definitions establish that even though Davidson mentions fused quartz, he is interested in transmitting light in the ultraviolet region, and does not teach that his lens is formed of a synthetic fused silica. Instead, these definitions establish that his use of the term fused quartz would not be understood to mean that the lens is formed of a synthetic fused silica, but from a quartz glass which is noted for its transparency to ultraviolet radiation and which is formed from a silicon dioxide mineral. Nor is there any teaching that the lens in Davidson does not discolor when it is exposed to gamma radiation.

Conclusion

For these reasons it is submitted that the references cited by the Examiner do not render the claimed subject matter obvious and that the pending claims should be allowed. Applicant requests reconsideration and withdrawal of all rejections.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 06-2375, under Order No. HO-P02540US1 from which the undersigned is authorized to draw.

Application No.: 09/896,429

Docket No.: HO-P02540US1

Dated: February 24, 2004

Respectfully submitted,

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On the cover: Photomicrograph of crystals of vitamin B₁.
(Dennis Kunkel, University of Hawaii)

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In addition, material has been drawn from the following references: R. E. Huschke, *Glossary of Meteorology*, American Meteorological Society, 1959; *U.S. Air Force Glossary of Standardized Terms*, AF Manual 11-1, vol. 1, 1972; *Communications-Electronics Terminology*, AF Manual 11-1, vol. 3, 1970; W. H. Allen, ed., *Dictionary of Technical Terms for Aerospace Use*, 1st ed., National Aeronautics and Space Administration, 1965; J. M. Gilliland, *Solar-Terrestrial Physics: A Glossary of Terms and Abbreviations*, Royal Aircraft Establishment Technical Report 67158, 1967; *Glossary of Air Traffic Control Terms*, Federal Aviation Agency; *A Glossary of Range Terminology*, White Sands Missile Range, New Mexico, National Bureau of Standards, AD 467-424; *A DOD Glossary of Mapping, Charting and Geodetic Terms*, 1st ed., Department of Defense, 1967; P. W. Thrush, comp. and ed., *A Dictionary of Mining, Mineral, and Related Terms*, Bureau of Mines, 1968; *Nuclear Terms: A Glossary*, 2d ed., Atomic Energy Commission; F. Casey, ed., *Compilation of Terms in Information Sciences Technology*, Federal Council for Science and Technology, 1970; *Glossary of Stinfo Terminology*, Office of Aerospace Research, U.S. Air Force, 1963; *Naval Dictionary of Electronic, Technical, and Imperative Terms*, Bureau of Naval Personnel, 1962; *ADP Glossary*, Department of the Navy, NAVSO P-3097.

McGRAW-HILL DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS, Fifth Edition

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furrow press [AGR] A device that firms the earth in a furrow after plowing. { 'fərō, pres }

Furry theorem [QUANT MECH] In quantum electrodynamics; the theorem that the contribution of a Feynman diagram, consisting of a closed polygon of fermion lines connected to an odd number of photon lines, vanishes. { 'fərē, thirəm }

furuncle [MED] A small cutaneous abscess, usually resulting from infection of a hair follicle by *Staphylococcus aureus*. Also known as boil. { 'fūr, əp, kəl }

furunculosis [MED] A condition marked by numerous furuncles, or the recurrence of furuncles following healing of a preceding crop. { 'fūr, rəp, kəsəlōsəs }

fusain [GEOL] The local lithotype strands or patches, characterized by silky luster, fibrous structure, friability, and black color. Also known as mineral charcoal; mother-of-coal. { 'fūz, ən }

Fusarium [MYCOL] A genus of fungi in the family Tubercolariaceae having sickle-shaped, multicelled conidia; includes many important plant pathogens. { 'fūz'ərē, əm }

Fusarium oxysporum [MYCOL] A pathogenic fungus causing a variety of plant diseases, including cabbage yellows and wilt of tomato, flax, cotton, peas, and muskmelon. { 'fūz'ərē, əks'pōrəm }

Fusarium solani [MYCOL] A pathogenic fungus implicated in root rot and wilt diseases of several plants, including sisal and squash. { 'fūz'ərē, əm sō'lanē }

fuse [ELEC] An expendable device for opening an electric circuit when the current therein becomes excessive, containing a section of conductor which melts when the current through it exceeds a rated value for a definite period of time. Also known as electric fuse. { 'fūz } Also spelled fuze. 1. A device with explosive components designed to initiate a train of fire or detonation in an item of ammunition by an action such as hydrostatic pressure, electrical energy, chemical energy, impact, or a combination of these. 2. A nonexplosive device designed to initiate an explosion in an item of ammunition by an action such as continuous or pulsating electromagnetic waves or acceleration. { 'fūz }

fuse alarm [ELEC] Circuit that produces a visual or audible signal to indicate a blown fuse. { 'fūz ə, lārm }

fuse blasting cap [ENG] A small copper cylinder closed at one end and charged with a fulminate. { 'fūz'blast-ə, kap }

fuse block [ELEC] An insulating base on which are mounted fuse clips or other contacts for fuses. Also known as fuseboard. { 'fūz, blāk }

fuseboard [ELEC] See fuse block. { 'fūz, bōrd }

fuse body [ENG] The part of a fuse contributing the major portion of the total weight, and which houses the majority of the functioning parts, and to which smaller parts are attached. { 'fūz, bōdē }

fuse box [ELEC] See cutout box. { 'fūz, bāks }

fuse clip [ELEC] A spring contact used to hold and make connection to a cartridge-type fuse. { 'fūz, klip }

fuse/cutout [ELEC] Assembly of a fuse support and a fuse holder which may or may not include the fuse link. { 'fūz, kātūt }

metaaromatic ring [ORG CHEM] A molecular structure in which two or more aromatic rings have two carbon atoms in common. { 'mētə, ərōmətik, rīng }

used electrolyte battery See thermal battery. { 'fūz'ēd i'lek-tōrētik bātērē }

use diode [ELEC] A diode that opens under specified current surge conditions. { 'fūz, dī, öd }

use disconnecting switch [ELEC] Disconnecting switch in which a fuse unit forms a part of the blade. { 'fūz dis'kō, nēk-tē, switħ }

used junction [ELEC] See alloy junction. { 'fūz' jōŋk-shən }

used junction diode See alloy-junction diode. { 'fūz'ēd jōŋk-shən, diōd }

used junction transistor See alloy-junction transistor. { 'fūz'ēd jōŋk-shən trān'zistor }

used potassium sulfide See potassium sulfide. { 'fūz'ēd pōtāsēüm səlfīd }

used quartz [MATER] A glasslike insulating material made by melting crushed crystals of natural quartz or a certain type of quartz sand. { 'fūz'ēd kwōrt }

used salt electrolysis [PHYS CHEM] Electrolysis with use of purified fused salts as raw material and as an electrolyte. { 'fūz'ēd sālt, ēlektro-lā-sēs }

fused-salt reactor See molten-salt reactor. { 'fūz'ēd sōlt rē-ak'tōr }

fused semiconductor [ELECTR] Junction formed by recrystallization on a base crystal from a liquid phase of one or more components and the semiconductor. { 'fūz'ēd 'sem-i-kān, dēk-tōr }

fused silica See silica glass. { 'fūz'ēd 'sīl-ə-kā }

fused silver nitrate See lunar caustic. { 'fūz'ēd 'sil-vər' nī-trāt }

fused spray deposit [MET] In thermal spraying, deposit which is sprayed on a preheated substrate and has the capability to coalesce within itself as well as to the substrate. { 'fūz'ēd 'sprā dī-pāz-ət }

fusee [HOROL] In a timepiece; a conical pulley with grooves in a spiral configuration from which a cord or chain unwinds onto a barrel containing the spring; the increasing diameter of the pulley compensates for the lessening power of the spring. [VET MED] A bony growth occurring on a horse's leg. Also spelled fuzee. { 'fūz'ēz }

fuse gage [ENG] An instrument for slicing time fuses to length. { 'fūz, gāj }

fusehead [ENG] That part of an electric detonator consisting of twin metal conductors, bridged by fine resistance wire, and surrounded by a bead of igniting compound which burns when the firing current is passed through the bridge wire. { 'fūz, hed }

fuselage [AERO ENG] In an airplane, the central structure to which wings and tail are attached; it accommodates flight crew, passengers, and cargo. { 'fūr-sā, läzh }

fuse lighter [ENG] A device for facilitating the ignition of the powder core of a fuse. { 'fūz, lid-ər }

fuse link [ELEC] Part of a fuse that carries the current of the circuit and all or part of which melts when the current exceeds a predetermined value. { 'fūz, līnk }

fusel oil [MATER] A volatile, poisonous mixture of isoamyl, butyl, propyl, and heptyl alcohols produced as by-products in alcoholic fermentation of starches, grains, or fruits to produce ethyl alcohol. { 'fūz'ēl, öil }

fuse PROM [COMPUT SCI] A programmable read-only memory in which the programming is carried out either by blowing open microscopic fuse links to define a logic one or zero for each cell in the memory array, or by causing metal to short out base-emitter transistor junctions to program the ones or zeros into the memory. { 'fūz'ē, prām }

fuse wire [ELEC] Wire made from an alloy that melts at a relatively low temperature and overheats to this temperature when carrying a particular value of overload current. { 'fūz'ē, wīr }

fusibility [THERMO] The quality or degree of being capable of being liquefied by heat. { 'fūz'ə-bil'ēdē }

fusible alloy [MET] A low melting alloy, usually of bismuth, tin, cadmium, and lead, which melts at temperatures as low as 70°C (160°F). { 'fūz'ē-bēl al, öi }

fusible plug See safety plug. { 'fūz'ē-bēl 'plag }

fusible resistor [ELEC] A resistor designed to protect a circuit against overload; its resistance limits current flow and thereby protects against surges when power is first applied to a circuit; its fuse characteristic opens the circuit when current drain exceeds design limits. { 'fūz'ē-bēl ri'zis-tər }

fusiform [BIOL] Spindle-shaped; tapering toward the ends. { 'fūz'ē-fōrm }

fusiform bacillus [MICROBIO] A bacillus having one blunt and one pointed end, as *Fusobacterium fusiforme*. { 'fūz'ē-fōrm bās'fēs }

fusiform initial cell [BOT] A cell type of the vascular cambium that gives rise to all cells in the vertical system of secondary xylem and phloem. { 'fūz'ē-fōrm ə'nish'ēl 'sel' }

fusimotoneuron [PHYSIO] One of the small motor fibers, composing about 30% of the fibers in the ventral root of the spinal cord, which innervate intrafusal fibers. { 'fūz'ē-mō-dō'nū, rān }

fusing disk [MECH ENG] A rapidly spinning disk that cuts metal by melting it. { 'fūz'ēn, dīsk }

fusinite [GEOL] The micropetrological constituent of fusain which consists of carbonized woody tissue. { 'fūz'ē-nit }

fusinization [GEOL] The process of formation of fusain in coal. { 'fūz'ē-nāz'ē-shān }

fusion [NUC PHYS] Combination of two light nuclei to form a heavier nucleus (and perhaps other reaction products) with release of some binding energy. Also known as atomic fusion;

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silcrete [GEOL] A conglomerate of sand and gravel cemented by silica. { 'sil', krēt }

silent discharge [ELECTR] An inaudible electric discharge in air that occurs at high voltage and consumes a relatively large amount of energy. { 'sīl'ənt' dis, chārj }

silent mutation [GEN] A mutation that does not result in amino acid sequence change. { 'sīl'ənt myü' tāshən }

silent period [COMMUN] Period during each hour in which ship and shore radio stations must remain silent and listen for distress calls. { 'sīl'ənt' pīrēd }

silent speed [ENG] The speed at which silent motion pictures are fed through a projector, equal to 16 frames per second (sound-film speed is 24 frames per second). { 'sīl'ənt' spēd }

silent stock support [MECH ENG] A flexible metal guide tube in which the stock tube of an automatic screw machine rotates; it is covered with a casing which deadens sound and prevents transfer of noise and vibration. { 'sīl'ənt' stāk sōpōrt }

silic [MATER] Heat- and shock-resistant glass containing about 98% quartz. [MINERAL] A pure or finely ground quartz. { 'sīl'eks }

silicite [GEOL] Chert occurring in calcareous beds. [PETR] Igneous rock composed mainly of primary quartz. { 'sīl'ek, sit }

silhouette target [ORD] 1. Target whose shape is outlined against a light background, although its body features cannot be clearly seen. 2. Practice target consisting of the dark image of a person or object outlined against a light background. { 'sīl'īf'ü tār'gət }

silica [MINERAL] SiO_2 Naturally occurring silicon dioxide; occurs in five crystalline polymorphs (quartz, tridymite, cristobalite, coesite, and stishovite), in cryptocrystalline form (as chalcedony), in amorphous and hydrated forms (as opal), and combined in silicates. { 'sīl'əkə }

silica aerogel [MATER] A colloidal silica powder whose grains have small pores; used as a low-temperature insulator. { 'sīl'əkə' erōjəl }

silica brick [MATER] A type of refractory brick formed of at least 90% silica cemented with, for example, slurred lime; used to line furnace roofs. { 'sīl'əkə' brīk }

silica cement [MATER] A mortar used with silica cement; it is a refractory material. { 'sīl'əkə' sī'mēnt }

silica flour [MET] A sand additive for casting produced by pulverizing quartz sand. { 'sīl'əkə' flōr }

silica gel [INORG CHEM] A colloidal, highly absorbent silica used as a dehumidifying and dehydrating agent, as a catalyst carrier, and sometimes as a catalyst. { 'sīl'əkə' gel }

silica glass [MATER] A translucent or transparent vitreous material consisting almost entirely of silica. Also known as fused silica; vitreous silica. { 'sīl'əkə' glās' }

silica sand [GEOL] Sand having a very high percentage of silicon dioxide; a source of silicon. { 'sīl'əkə' sand' }

silica stone [PETR] A sedimentary rock composed of siliceous minerals. { 'sīl'əkə' stōn' }

silicate [INORG CHEM] The generic term for a compound that contains silicon, oxygen, and one or more metals, and may contain hydrogen. [MINERAL] Any of a large group of minerals whose crystal lattice contains SiO_4 tetrahedra, either isolated or joined through one or more of the oxygen atoms. { 'sīl'əkət }

silicate cement [MATER] The silicate of soda glue; used as an adhesive in cardboard and plywood boxes. { 'sīl'əkət si'mēnt }

silicate cotton See mineral wool. { 'sīl'əkət' kōtən' }

silicate grinding wheel [DES ENG] A mild-acting grinding wheel where the abrasive grain is bonded with sodium silicate and fillers. { 'sīl'əkət' grīnd'g wēl' }

silicate of soda See sodium silicate. { 'sīl'əkət' əv' sōd'ə' }

silicate paint [MATER] A paint in which the vehicle is water-soluble sodium silicate; used for painting mortar. { 'sīl'əkət' pānt' }

silication [GEOL] The conversion to or the replacement by silicates. { 'sīl'əkā'shən' }

silicification [MIN ENG] The sealing off of water by the injection of calcium silicate under pressure; sometimes used to reduce the leakage of water through defective lengths of tubing in a shaft. { 'sīl'əkād'ə' zā'shən' }

siliceous [PETR] Describing a rock containing abundant silica, especially free silica. { 'sā'līshəs' }

siliceous dust [MIN ENG] The dust arising from the dry-working of sand, sandstone, trap, granite, and other igneous

rocks; the dust is not soluble in the body fluids, and often results in a form of pneumoconiosis, known as silicosis. { 'sā'līshəs' dōst' }

siliceous earth [GEOL] A loose, friable, soft, porous, light-weight, fine-grained, and usually white siliceous sediment, usually derived from the remains of organisms. { 'sā'līshəs' ērth' }

siliceous limestone [PETR] 1. A dense, dark, commonly thin-bedded limestone representing an intimate admixture of calcium carbonate and chemically precipitated silica that are believed to have accumulated simultaneously. 2. A silicified limestone, bearing evidence of replacement of calcite by silica. { 'sā'līshəs' līm'stōn' }

siliceous ooze [GEOL] An ooze composed of siliceous skeletal remains of organisms, such as radiolarians. { 'sā'līshəs' ūz' }

siliceous sediment [GEOL] A sediment composed of fragmental, concretionary, or precipitated siliceous materials. { 'sā'līshəs' sed'mənt' }

siliceous shale [PETR] A hard, fine-grained rock with the texture of shale and with as much as 85% silica. { 'sā'līshəs' shāl' }

siliceous sinter [MINERAL] A white, lightweight, porous, opaline variety of silica, deposited by a geyser or hot spring. Also known as fiorite; geyserite; pearl sinter; sinter. { 'sā'līshəs' sīntər' }

silicic [PETR] Describing magma or igneous rock rich in silica (usually at least 65%); granite is a silicic rock. Also known as oversaturated; persilicic. { 'sā'līs'ik' }

silicic acid [INORG CHEM] $\text{SiO}_2 \cdot n\text{H}_2\text{O}$ A white, amorphous precipitate; used to bleach fats, waxes, and oils. Also known as hydrated silica. { 'sā'līs'ik' as'əd' }

silicide [CHEM] A binary compound in which silicon is bonded with a more electropositive element. { 'sīl'ē, sīd' }

silicide resistor [ELECTR] A thin-film resistor that uses a silicide of molybdenum or chromium, deposited by direct-current sputtering in an integrated circuit when radiation hardness or high resistance values are required. { 'sīl'ē, sīd' rī'zīs'tōr' }

silicification [GEOL] Introduction of or replacement by silica. Also known as silification. { 'sā'līs'əf'ā'kāshən' }

silicified wood [GEOL] A material formed by the silicification of wood; generally in the form of opal or chalcedony, in such a manner as to preserve the original form and structure of the wood. Also known as agatized wood; opalized wood; petrified wood; woodstone. { 'sā'līs'ə, fid' wūd' }

silicinate [GEOL] Pertaining to the silica cement of a sedimentary rock. { 'sā'līs'ən, āt' }

siliclastic [PETR] Pertaining to clastic noncarbonate rocks which are almost exclusively silicon-bearing, either as forms of quartz or as silicates. { 'sīl'ē, klas'tik' }

silicle [BOT] A many-seeded capsule formed from two united carpels, usually of equal length and width, and divided on the inside by a replum. { 'sīl'ē, kāl' }

silicoblast [INV ZOO] Poriferan amoebocytes involved in formation of siliceous spicules. { 'sīl'ē, kō, blāst' }

Silicoflagellata [BOT] A class of unicellular flagellates of the plant division Chrysophyta represented by a single living genus, *Dictyocha*. { 'sīl'ē, kō, flāj'ē, lād'ē' }

Silicoflagellida [INV ZOO] An order of marine flagellates in the class Phytomastigophorea which have an internal, siliceous, tubular skeleton, numerous yellow chromatophores, and a single flagellum. { 'sīl'ē, kō, flāj'ē, jēl'ēd' }

silicomagnesiofluorite [MINERAL] $\text{Ca}_4\text{Mg}_3\text{Si}_2\text{O}_5(\text{OH})_2\text{F}_{10}$ A mineral composed of basic calcium magnesium fluoride and silicate. { 'sīl'ē, kō, māg'ñēzē'ō, flūr'it' }

silicomanganese [MET] A crude alloy made up of 65–70% manganese, 16–25% silicon, and 1–2.5% carbon; used in the manufacture of low-carbon steel. { 'sīl'ē, kō, māgn'ēzē, nēs' }

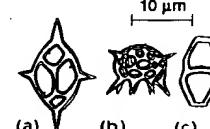
silicon [CHEM] A group IV nonmetallic element; symbol Si, with atomic number 14, atomic weight 28.086; dark-brown crystals that burn in air when ignited; soluble in hydrofluoric acid and alkalis; melts at 1410°C ; used to make silicon-containing alloys, as an intermediate for silicon-containing compounds, and in rectifiers and transistors. { 'sīl'ē, kān' }

silicon bromide See silicon tetrabromide. { 'sīl'ē, kō, brō, mīd' }

silicon bronze [MET] An alloy of copper with 1–5% silicon; it is corrosion-resistant and has good mechanical properties. { 'sīl'ē, kōn' brānz' }

silicon-burning [NUC PHYS] The synthesis, in stars, of ele-

SILICOFLAGELI



Examples of fossil and Silicoflagellata. (a) *Dicranocephalus*, Cretaceous to Recent; (b) *Cannopitius*, Miocene; (c) *Naviculopsis*, Eocene; and (d) *Valla*, Upper Cretaceous.



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fern tight (fr. *L. firmus* firm) + *lier* to tie, fr. *L. ligare* — more at **LIGATURE** vt (1556): to wrap or roll (as a sail or a flag) close to or around something — vi: to curl or fold as in being furled

furl *ri* (1643) 1: a furled coil 2: the act of furling

furlong \fôr-lông\ n [ME *furlong*, fr. OE *furlang*, fr. *furl* furrow + *long* long] (14c): a unit of distance equal to 220 yards (about 201 meters)

furlough \fôr-lôf\ n [D. *verlof*, lit. permission, fr. MD, fr. *ver*- + *lof* permission; akin to MHG *loube* permission — more at **FOR-LEAVE**] (1625): a leave of absence from duty granted esp. to a soldier; also: a document authorizing such a leave of absence

furlough vt (1781) 1: to grant a furlough to 2: to lay off from work

furn-i-ture \fôrnchü-rü\ n [ME *furnisshen*, fr. MF *fourniss-*, stem of *fournir* to complete, equip, of Gmc origin; akin to OHG *frummen* to further, *fruma* advantage — more at **FOREMOST**] (15c) 1: to provide with what is needed; esp. to equip with furnishings 2: to supply (food and shelter for the refugees) — **furnisher** n

syn **FURNISH**, **EQUIP**, **OUTFIT**, **APPOINT**, **ACCOURE** mean to supply one with what is needed. **FURNISH** implies the provision of any or all essentials for performing a function (a sparsely furnished apartment). **EQUIP** suggests the provision of something making for efficiency in action or use (a fully equipped kitchen). **OUTFIT** implies provision of a complete list or set of articles as for a journey, an expedition, or a special occupation (*outfitted* the family for a ski trip). **APPOINT** implies provision of complete and usu. elegant or elaborate equipment or furnishings (a lavishly appointed apartment). **ACCOURE** suggests the supplying of personal dress or equipment for a special activity (fully *accoured* members of a polar expedition).

furnish-ing n (1594) 1: an article or accessory of dress — usu. used in pl. 2: an object that tends to increase comfort or utility; esp. an article of furniture for the interior of a building — usu. used in pl.

furni-ture \fôrnchü-rü\ n [MF *fourniture*, fr. *fournir*] (1542): equipment that is necessary, useful, or desirable: as a: *archaic*: the trappings of a horse b: movable articles used in readying an area (as a room or patio) for occupancy or use

furniture beetle n (1925): a widespread deathwatch beetle (*Anobium punctatum*) noted for boring in and damaging furniture and seasoned wood

fur \fyôr, -ôr, -ôr, -ôr\ n [MF & L; MF, fr. L, fr. *furere* to rage] (15c) 1: an angry or maniacal fit: **RAGE** 2: **FURY** 4 3: a fashionable craze: **VOGUE** 4: a: furious or hectic activity b: an outburst of public excitement or indignation: **UPROAR**

fur-rore \fyôr-ôr, -ôr, -ôr, esp *Brit. fyôr-ôr* n [It. fr. L *furo*] (1790) 1: **FUROR** 4b 2: **FUROR** 3

fur-ro-se-mide \fyôr-ôsô-mid\ n [*furfural* + -o- + *sulf.* + *-amide*] prob. alter. of *amide* (1965): a powerful diuretic $C_{12}H_{11}ClN_2O_3S$ used esp. to treat edema

furred \fyôrd\ adj [ME] (14c) 1: lined, trimmed, or faced with fur: as: coated as if with fur; specif.: having a coating consisting chiefly of mucus and dead epithelial cells (a ~ tongue) 3: bearing or wearing fur 4: provided with furring (~ wall)

fur-ri-er \fyôr-ôr, -ôr, -ôr, -ôr\ n [alter. of *foreigner*] (1849): **FOREIGNER** 2 used to represent a dual, pronunc.

fur-ring \fyôr-ing\ n (14c) 1: a fur trimming or lining 2: a: the application of thin wood, brick, or metal to joists, studs, or walls to form a level surface (as for attaching wallboard) or an air space b: the material used in this process

fur-row \fyôr-(ô)-ôr-v\, \fyôr-(ô)-ôr, -ôr-(ô)-v\ n [ME *furfur*, fr. OF *furfur*; akin to OHG *furfur* furrow, L *porcas* (bef. 12c)] 1: a: a trench in the earth made by a plow b: plowed land: **FIELD** 2: something that resembles the track of a plow: as a: a marked narrow depression in a: **GROOVE** b: a deep wrinkle (~s in his brow)

furrow vt (15c) 1: to make furrows, grooves, wrinkles, or lines in ~: to make or form furrows, grooves, wrinkles, or lines in ~

furry \fyôr-ë\ adj **FUR-RI-ER** -est (ca. 1674) 1: consisting of or resembling fur (animals with ~ coats) 2: covered with fur 3: thick in quality (speak with a ~ voice)

fur seal n (1775): any of two genera (*Callorhinus* and *Arctocephalus*) eared seals that have a double coat with a dense soft underfur

fur-ther \fyôr-thôr\ adv [ME, fr. OE *further* (akin to OHG *further* further), compar., fr. the base of OE *for* forth] (bef. 12c) 1: FARTHER 1 (my ponies are tired, and I have ~ to go —Thomas Hardy) 2: in addition: **MOREOVER** 3: to a greater degree or extent (~ annoyed by a second intrusion) **usage** see **FARTHER**

further vt **furthered**; **fur-ther-ing** \fyôr-thîng, \fyôr-thë-ñ\ (bef. 12c) 1: to help forward: **PROMOTE** **syn** see **ADVANCE** 2: **further-er** \fyôr-thôr-ôr\ n

further adj (13c) 1: FARTHER 1 (rode ~ across the valley and up ~ slopes —T. E. Lawrence) 2: going or extending beyond: **ADDITIONAL** (**volumes**) (~ education) **usage** see **FARTHER**

fur-ther-ance \fyôr-thôr-ans\, **for-thâr-ans** (15c) : the act of furthering: **ADVANCEMENT**

further education n (1937) **Brit.**: **ADULT EDUCATION**

fur-ther-more \fyôr-thôr-môr, -môr\ adv (13c) : in addition to what precedes: **BESIDES**

fur-ther-most \fyôr-thôr-môst\ adj (15c) : most distant: **FARTHEST**

fur-thest \fyôr-thast\ adj or adv (14c) : **FARTHEST**

fur-tive \fyôr-tiv\ adj [Fr. or L; fr. *Furtivus*, fr. *furtum* theft] (1612) 1: a: done by stealth: **SURREPTITIOUS** b: expressive of stealth: **SLY** (had a ~ look about him) 2: obtained underhand: **STOLEN** **syn** see **SECRET** — **furtively** adv — **furtive-ness** n

fu-run-cle \fyôr-angkôl\ n [L *furuncula* petty thief, boil, dim. of

fu-run-cu-lo-sis *(fyü-rən-kyü-'lō-səs)* *n*, *pl* -lo-ses *\-,sēz* [NL] (18: 1: the condition of having or tending to develop multiple furuncles : a highly infectious disease of various salmonoid fishes (as trout) that is caused by a bacterium (*Bacterium salmonicida*) and is esp. virulent dense fish populations (as in hatcheries)

fu-ry *\'fyü-rē* *n*, *pl* furies [ME *furiē*, fr. MF *furie* & L. *MF*, fr. *L* *furia*, *fure* to rage] (14c) 1: intense, disordered, and often destructive rage 2: a cap: any of the avenging deities in Greek mythology that torment criminals and inflict plagues 3: an avenging spirit c: who resembles an avenging spirit; esp: a spiteful woman 4: extreme fierceness or violence 4: a state of inspired exaltation — **FRENZY** *s* see ANGER

furze *\'fər-zə* *n* [ME *firsē*, fr. OE *fyras*; akin to Russ *pyre* quack grain, Gk *pyros* wheat] (bef. 12c) **GORSE** — **furzy** *\'fər-zē* *adj*

fus-cous *\'fəs-kəs* *adj* [L. *fuscus* — more at DUSK] (1662): of any several colors averaging a brownish gray

fuse *\'fyüz* *vb* fused; **fus-ing** [L. *fusus*, pp. of *fundere* to pour, melt] more at **FOUND** *vi* (1592) 1: to reduce to a liquid or plastic state heat 2: to blend thoroughly by or as if by melting together: **CONFINE** (in her richest work she ~s comedy and tragedy —T. A. Garrison) 3: to stitch by applying heat and pressure with or without use of an adhesive — **vi** 1 *a*: to become fluid with heat *b* Brit: fail because of the blowing of a fuse 2: to become blended or joined by or as if by melting together **syn** see **MIX**

fuse *n* (1884): an electrical safety device consisting of or including wire or strip of fusible metal that melts and interrupts the circuit when the current exceeds a particular amperage

fuse *n* [It. *fuso*, spindle, fr. L. *fusus*, of unknown origin] (1644) 1: continuous train of a combustible substance enclosed in a cord or cap for setting off an explosive charge by transmitting fire to it 2: **usu** *fi* : a mechanical or electrical detonating device for setting off the burning charge of a projectile, bomb, or torpedo

fuse or **fuze** *\'fyüz* *vi* **fused** or **fuzed**; **fus-ing** or **fuz-ing** (1802) equip with a fuse

fused quartz *n* (1925): QUARTZ GLASS — called also **fused silica**

fu-see *\'fyü-zē* *n* [F. *fusée*, lit., spindleful of yarn, fr. OF, *fus* spin, fr. L. *fusus*] (1622) 1: a conical spirally grooved pulley in a timper from which a cord or chain unwinds onto a barrel containing the spring and which by its increasing diameter compensates for the lessening power of the spring 2: a red signal flare used esp. for protecting stalled trains and trucks

fu-se-lage *\'fyü-sə-läzh*, *-zäzh* *n* [F. *fr. fuselé* spindle-shaped, fr. MF *fusel*, dim. of *fus*] (1909) : the central body portion of an aircraft designed to accommodate the crew and the passengers or cargo — **AIRPLANE** illustration

fu-sel oil *\'fyü-zäl* *n* [G. *Fusel* bad liquor] (1850): an acrid oily liquid occurring in insufficiently distilled alcoholic liquors, consisting chiefly of amyl alcohol, and used esp. as a source of alcohols and as a solvent

fus-ible *\'fyü-zə-bəl* *adj* (14c) : capable of being fused and esp. ignited by heat (~ alloy) — **fus-ibil-ity** *\'fyü-zə-bi-lətē* *n*

fu-si-form *\'fyü-zə-förm* *adj* [L. *fusus* spindle] (1746) : tapering toward each end (~ bacteria)

fu-sil *\'fyü-zil* *n* or **fu-sile** *\'fyü-zəl* *n* [ME, fr. L. *fusilis*, fr. *dere*] (14c) 1: **archaic** *a*: made by melting and pouring into a cast *b*: liquefied by heat 2: **archaic** *a*: **FUSIBLE**

fu-sil *n* [F. *lit.*, steel for striking fire, fr. OF *fuisil*, fr. (assumed) VL *lis*, fr. LL *focus* fire — more at *FUEL*] (1680): a light flintlock musket

fu-sil-ier or **fu-sile-er** *\'fyü-zə-'lir* *n* [F. *fusilier*, fr. *fusil*] (1680) : soldier armed with a fusil 2: a member of a British regiment formed with fusils

fu-sil-lade *\'fyü-sə-läd*, *-läd*, *fyü-sə-*, *-zə-* *n* [F. *fusillier* to slay, fr. *fusil*] (1801) 1 *a*: a number of shots fired simultaneously or in rapid succession *b*: something that gives the effect of a fusillade of rocks and bottles 2: a spirited outburst esp. of criticism

fu-sil-li *\'fyü-'sī-lē*, *-sē-* *n* [It. pl. of *fusillo*, fr. L. *tit*. It. *titul*. (southern It. dim. of *fusile* spindle, fr. L. *fusus*)] (1948) : spiral-shaped pasta

fu-sion *\'fyü-zhən* *n*, often attrib [L. *fusion*, *fusio*, fr. *fundere*] (155: 1: the act or process of liquefying or rendering plastic by heat 2: union by or as if by melting: *a*: a merging of diverse, distinct separate elements into a unified whole *b*: a political party *c*: **COALITION** *d*: popular music combining different styles (as jazz and rock) 3: the union of atomic nuclei to form heavier nuclei resulting in the release of enormous quantities of energy when certain light elements unite

fu-sion-ist *\'fyü-zhən-ist* *n* (1851): a person involved in a political fusion or in nuclear or musical fusion

fuss *\'fəs* *n* [origin unknown] (1701) 1 *a*: needless bustle or excitement: **COMMOTION** *b*: a show of flattering attention (made a over his favorite niece) 2 *a*: a state of agitation esp. over a trivial matter *b*: **OBJECTION** *c*: an often petty controversy or quarrel (ended up having a pretty good ~ with my wife —Mac Hyman)

fuss *vi* (1792) 1 *a*: to create or be in a state of restless activity: to shower flattering attentions (~ing over the grandchildren) *b*: to pay close or undue attention to small details (~ed with her hair) *c*: to become upset; **WORRY** *b*: to express annoyance or pique; *d*: to plain ~ *vi*: **AGITATE**, **UPSET** — **fuss-er** *n*

fuss-bud-get *\'fəs-bəd-jət* *n* (ca. 1904) : one who fusses or is fuss about trifles — **fuss-bud-gety** *\'fəs-bəd-tē* *adj*

fuss-pot *\'fəs-pət* *n* (1921): **FUSSBUDGET**

fussy *\'fəsē* *adj* **fuss-i-er**, *-est* (1831) 1: easily upset; **IRRITABLE** : overly decorative (a ~ wallpaper pattern) 3 *a*: requiring or showing close attention to details (~ bookkeeping procedures) *b*: revealing sometimes extreme concern for niceties: **FASTIDIOUS**, **PICKY** — **fus-sy** *\'fəs-sē* *adv* — **fuss-i-ness** *\'fə-sē-nəs* *n*

fus-tian *\'fəs-chən* [ME, fr. OF *fustaine*, fr. ML *fustianum*, pe fustis tree trunk, fr. L. *club*] (13c) 1 *a*: a strong cotton and fabric *b*: a class of cotton fabrics usu. having a pile face and weave 2: highflossy or affected writing or speech; **broadly**: *an* highflossy or affected in style — **fus-tian** *adj*

fus-tic *\'fəs-tik* *n* [ME *fustyk* smoke tree, fr. MF *fustoc*, fr. Ar *fr. Gk *pistake** pistachio tree — more at *PISTACHIO*] (15c): the woc tropical American tree (*Chlorophora tinctoria*) of the mulberry that yields a yellow dye; also: any of several similar dyewoods

fus-tigate *\'fəs-tik-ət* *adj* **fat-ged** *\'fat-əd*; **gat-ing** [LL *fustigatus*, *1*

ter section *n* (1804) : a tract of land that is half a mile square and contains 160 acres in the U.S. government system of land surveying

ter sessions *n pl* (1577) : a former English local court with limited original and appellate criminal and sometimes civil jurisdiction often administrative functions held quarterly usu. by two justices

the peace in a county or by a recorder in a borough

ter-staff \kwo(r)-tar-staf\ *n pl* -staves \-stavz, -stāvz\ (1550)

long stout staff formerly used as a weapon and wielded with one

in the middle and the other between the middle and the end

ter-tone *n* (ca. 1776) 1: a musical interval of one half a semitone

in tone at an interval of one quarter

ter-tot also *quar-tette* \kwo(r)-tet\ *n* [It *quartetto*, fr. *quarto* fourth, fr. *quartus* — more at *QUART*] (1773) 1: a musical composition for

instruments or voices 2: a group or set of four: esp. : the per-

sonal of a quartet

ter-tic \kwo(r)-tik\ *adj* [L *quartus* fourth] (ca. 1890) : of the fourth

time (as in *equation*) — *quartic* *n*

ter-tile \kwo(r)-til, -til'\ *n* [ISV, fr. L *quartus*] (1879) : any of the three

lines that divide the items of a frequency distribution into four classes

in each containing one fourth of the total population; also : any one

of the four classes

ter-to \kwo(r)-to\ *n pl* *quartos* [L, abl. of *quartus* fourth] (1589) 1:

the size of a piece of paper cut four from a sheet; also : paper or a

book of this size 2: a book printed on quarto pages

ter-tur \kwo(r)-tur\ *n* [G *Quarz*] (ca. 1631) 1: a mineral consisting of

silicon dioxide occurring in colorless and transparent or colored hexagonal

crystals or in crystalline masses 2: a quartz crystal that when

placed in an electric field oscillates at a constant frequency and is used

in control devices which require precise regulation (as in watch) —

quartzose \kwo(r)-sōz\ *adj*

quartz glass *n* (1903) : vitreous silica prepared from pure quartz and

used for its transparency to ultraviolet radiation

quartz heater *n* (1980) : a portable electric radiant heater that has

heating elements sealed in quartz-glass tubes producing infrared radia-

tion in front of a reflective backing

quartz-iodine lamp *n* (ca. 1964) : an incandescent lamp that has a

quartz bulb and a tungsten filament with the bulb containing iodine

which reacts with the vaporized tungsten to prevent excessive blacken-

ing of the bulb

quartzite \kwo(r)-sīt\ [ISV] (ca. 1847) : a compact granular rock

composed of quartz and derived from sandstone by metamorphism —

quartzitic \kwo(r)-sītik\ *adj*

quasar \kwa-zär, -zär, -sär\ *n* [quasi-stellar] (1964) : any of a class of

cosmic objects that resemble stars but whose large redshift and apparent

brightness imply extreme distance and huge energy output

quash \kwash, \kwosh\ *vt* [ME *quashen* to smash, fr. MF *quasser*, *asser*, fr. L *quassare* to shake violently, shatter, freq. of *quatere* to shake] (13c) : to suppress or extinguish summarily and completely (as in battle)

quash *vi* [ME *quasshen*, fr. MF *casser*, *quasser* to annul, fr. LL *cassare*, *cassus* void] (14c) : to nullify esp. by judicial action (as in indictment)

quasi \kwa-zī, -sī; 'kwa-zē, -sē\ *adj* [quasi-] (1642) 1: having some

resemblance usu. by possession of certain attributes (as in corporation)

2: having a legal status only by operation or construction of law and

without reference to intent (as in contract)

quasi-comb form [L *quasi* as if, as it were, approximately, fr. *quam* as

if — more at *QUANTITY*, *SO*] 1: in some sense or degree (quasiperiodic) 2: resembling in some degree (quasiparticle)

quasi-judi-cial \kwa-zī-zū-dī-shal, -sī-, 'kwa-zē-, -sē-\ *adj* (1836)

1: having a partly judicial character by possession of the right to hold

hearings and conduct investigations into disputed claims and alleged

infringements of rules and regulations and to make decisions in the

general manner of courts (as in bodies) 2: essentially judicial in char-

acter but not within the judicial power or function esp. as constitutionally

defined (as in review) — *qua-si-judi-cial-ly* \-dī-shl(-)lē\ *adv*

qua-si-leg-is-la-tive \-'le-jəs-,lā-tiv\ *adj* (ca. 1934) 1: having a partly

legislative character by possession of the right to make rules and regu-

lations having the force of law (as in agency) 2: essentially legislative

in character but not within the legislative power or function esp. as

constitutionally defined (as in powers)

qua-si-mo-do \kwa-si-mō-,dō, 'kwa-zī-\ *n* [ML *quasi modo* *geniti-*

infantes as newborn babes (words of the introit for Low Sunday)] (ca.

1847) : LOW SUNDAY

qua-si-par-ti-cle \kwa-zī-pär-ti-kəl, -sī-, 'kwa-zē-, -sē-\ *n* (1957) : a

composite entity (as a vibration in a solid) that is analogous in its be-

havior to a single particle

qua-si-per-od-i-cy \-pir-ē-'dīk\ *adj* (ca. 1890) : almost but not quite

periodic; esp. : periodic on a small scale but unpredictable at some

larger scale — *qua-si-per-od-i-cy-i-ty* \-'pir-ē-ō-'dī-sā-tē\ *n*

qua-si-public \-'pa-blik\ *adj* (1888) : essentially public (as in services

rendered) although under private ownership or control

qua-si-stellar object \-'ste-lär-\ *n* (1964) : QUASAR

qua-sia \kwa-shā\ *n* [NL, genus name of a So. American tree, fr.

Quassia 18th cent. Surinam slave who discovered the medicinal value of

qua-sia] (1770) : a drug from the heartwood of various tropical trees of

the ailianthus family used esp. as a bitter tonic and remedy for round-

worms in children and as an insecticide

qua-ter-cen-te-na-ry \,kwa-tär-sen-'te-nä-rē, -sen-t'är-när-ē,\ *n* [L *quater* four times + E *centenary* — more at *QUATERNION*] (1883)

qua-ter-na-ry \kwa-tär-ē\,n-ē, 'kwa-tär-nä-rē\ *adj* [L *quaternarius*,

fr. *quaterni* four each] (1605) 1: a: of, relating to, or consisting of

four units or members b: of, relating to, or being a number system

with a base of four 2: cap: of, relating to, or being the geological pe-

riod from the end of the Tertiary to the present time or the correspond-

ing system of rocks — see GEOLOGIC TIME table 3: consisting of, con-

taining, or being an atom bonded to four other atoms

qua-ter-nary *n pl* -ries (1880) 1: cap: the Quaternary period or sys-

tem of rocks 2: a member of a group fourth in order or rank

qua-ter-nary ammonium compound *n* (ca. 1934) : any of numerous

strong bases and their salts derived from ammonium by replacement of

the hydrogen atoms with organic radicals and important esp. as sur-

face-active agents, disinfectants, and drugs

qua-ter-ni-on \kwo-tär-nē-ən, kwa-\ *n* [ME *quaternioun*, fr. LL *qua-*

ternion, *quaterni*, fr. L *quaterni* four each, fr. *qua* four times; akin

to L *quatuor* four — more at *FOUR*] (14c) 1: a set of four parts,

things, or persons 2: a: a generalized complex number that is com-

posed of a real number and a vector and that depends on one real and

three imaginary units; b: pl: the calculus of quaternions

qua-ter-ni-ty \kwo-tär-nē-tē, kwa-\ *n pl -ties* [LL *quaternitas*, fr. L *quaterni* four each] (1529) : a union of a group or set of four

qua-train \kwa-trän, kwa-\ *n* [MF, fr. *quatre* four, fr. L *quatuor*] (1582) : a unit or group of four lines of verse

qua-tre-foil \kta-rō-fäl, 'kä-trä-\ *n* [ME *quaterfoil* set of four leaves,

fr. MF *quatre* + ME *foil* (as in *trefoil*) (15c) 1: a conventionalized

representation of a flower with four petals or of a leaf with four leaflets

2: a 4-lobed foliation in architecture

qua-tro-cen-to \kwa-trō-chēn-,tō\ *n* [often *cap*] [It, lit., four hundred;

fr. *quattro* four (fr. L *quatuor*) + *cento* hundred — more at *CIN-*

QUECENTO] (ca. 1854) : the 15th century esp. with reference to Italian

literature and art

qua-tu-or-de-cil-lion \kwa-tä-,wör-di-sil-yän\ *n*, often *attrib* [L *qua-*

tuordecim fourteen (fr. *quatuor* four + *decem* ten) + *illion* (as in

million) — more at *TEN*] (ca. 1903) — see *NUMBER* table

qua-ver \kwa-vär\ *vb* *qua-vered*, *qua-vering* \kwa-vär-ing\ [ME, freq. of *quaven* to tremble] vi (15c) 1: TREMBLE

2: to utter sound in tremulous tones ~ v. ~ to utter quaveringly —

qua-ver-ing-ly *adv* — *qua-ver-ly* \kwa-vär-ly\ *adj* — *qua-ver-ly* \kwa-vär-ly\ *n* (1952) — a communications code word for

the letter *q*

Que-be-cois or *Qué-be-cois* \kwa-bä-,kwa-\ *n pl* *Quebecois* or

Québecois \kwa-bäz\ [Fr *québécois*, *québécois*, fr. *Québec* Quebec] (1873) : a native or inhabitant of Quebec; specif: a French-speaking

native or inhabitant of Quebec — *Québecois* or *Québecois* *adj*

que-bra-chō \kä-brä-,chō, kī-\ *n* [AmerSp, alter. of *quebracha*, fr. Sp *quebrar* it breaks, + *chō* ax] (ca. 1881) 1: any of several trees of

southern So. America with hard wood: a: a tree (*Aspidosperma*

quebracho) of the dogbane family which occurs in Argentina and Chile

and whose dried bark is used as respiratory sedative in dyspnea and

asthma b: a chiefly Argentine tree (*Schinopsis lorentzii*) of the ca-

shew family with dense wood rich in tannins 2: a: the wood of a

quebracho b: a tannin-rich extract of the Argentine quebracho used

in tanning leather

Que-chua \ke-chä-wä, 'ke-chä-wä\ *n pl* *Quechua* or *Quechuas* [Sp,

prob. fr. Southern Peruvian Quechua *qheswa* (simi), lit., valley speech

(1840) 1: a family of closely related languages spoken by Indian

peoples of Peru, Bolivia, Ecuador, Chile, and Argentina 2: a: a

member of an Indian people of central Peru b: a group of peoples

constituting the dominant element of the Inca Empire — *Que-chua-n*

-wan *adj or n*

queen \kwen\ *n* [ME *quene*, fr. OE *cwēn* woman, wife, queen; akin to

Goth *qene* wife, Gk *gyna* woman, Skt *janā*] (bef. 12c) 1: a: the wife or

widow of a king b: the wife or widow of a tribal chief 2: a: a fe-

male monarch b: a female chieftain 3: a: a woman eminent in

rank, power, or attractions (as movie ~) b: a goddess or a thing per-

sonified as female and having supremacy in a specified realm c: an

attractive girl or woman; esp. : a beauty contest winner 4: the most

privileged piece of each color in a set of chessmen having the power to

move in any direction across any number of unoccupied squares 5: a

playing card marked with a stylized figure of a queen 6: the fertile

fully developed female of social bees, ants, and termites whose function

is to lay eggs 7: a: a mature female cat kept esp. for breeding 8: a

male homosexual; esp. : an effeminate one — often used disparagingly

queen *vi* (1611) 1: to act like a queen; esp. : to put on airs — usu.

used with it *it* over her friends 2: to become a queen in chess

queen Anne \-'än\ *adj* [Queen Anne of England] (1863) 1: of, relating

to, or having the characteristics of a style of furniture originating in

England under Dutch influence esp. during the first half of the 18th

century that is marked by extensive use of upholstery, marquetry, and

oriental fabrics 2: of, relating to, or having the characteristics of a

style of English building of the early 18th century characterized by

modified classic ornament and the use of red brickwork in which even

relief ornament is carved

Queen Anne's lace *n* (1895) : a widely naturalized Eurasian biennial

herb (*Daucus carota*) which has a whitish acid taproot and from which

the cultivated carrot originated — called also *wild carrot*

queen consort *n pl* *queens consort* (1765) : the wife of a reigning

king

queen-ly \kwen-lē\ *adj* *queen-ly*; *-est* (15c) 1: of, relating to, or

befitting a queen 2: having royal rank 3: MONARCHICAL — *queen-*

li-ness *n* — *queen-ly* *adv*

queen mother *n* (1577) : a queen dowager who is mother of the reigning

sovereign

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face-active agents, disinfectants, and drugs

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abut \ab\ kitten, F. table \or further \ash\ \ace\ \mop, mar \out\ out \ch\ chin \bet\ \easy\ \go\ \hit\ \ice\ \job\ \sing\ \go\ \law\ \boy\ \thin\ \the\ \loot\ \foot\ \yet\ \vision\ \a\ \i\ \æ\ \e\ \é\ *see Guide to Pronunciation*